

Application No. 10/009,226
Paper Dated March 30, 2004
Reply to USPTO Correspondence of December 31, 2003
Attorney Docket No. 4521-011622

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1-10 (Canceled)

11. (Currently Amended) A method for diagnosing ~~TSE-induced transmissible spongiform encephalopathies-induced (TSE-induced)~~ pathologic changes in tissues, said changes being caused by scrapie, ~~BSE bovine spongiform encephalopathies (BSE)~~ or another disease of the TSE group of diseases, comprising the steps of:

(a) directing infrared radiation onto a tissue sample and recording showing pathologic changes due to TSE, and that the spectral characteristics after interaction with the sample are recorded; and

(b) comparing and classifying the infrared spectra spectrum thus obtained against a reference database that contains infrared spectra of TSE-infected and non-infected tissues; and

(c) classifying the infrared spectrum as a spectrum obtained from TSE-infected or non-infected tissues.

12. (Previously Presented) The method according to claim 11, wherein said tissue sample is collected from one of the central nervous system, the peripheral nervous system and human organs.

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13. (Currently Amended) The method according to claim 11, wherein said infrared spectrum of the tissue is measured in at least one region of one of the mid-infrared range from 500 to 4000 cm^{-1} and the near infrared range from 4000 to ~~4000~~ 10000 cm^{-1} .

14. (Currently Amended) The method according to claim 11, wherein said infrared spectrum of the tissue is measured in the spectral region from ~~40000~~ 1000 to 1300 cm^{-1} of the mid-infrared range.

15. (Previously Presented) The method according to claim 11, wherein said infrared radiation interacts with said sample, and the characteristically altered radiation is detected in one of a transmission/absorption, attenuated total reflection, direct reflection measuring setup, diffuse reflection measuring setup, and by using IR waveguides.

16. (Previously Presented) The method according to claim 11, wherein said infrared spectrum of the sample to be examined is compared against the reference database using at least one method of pattern recognition, and that the spectral regions said comparison is based on are determined using methods for extracting optimum spectral characteristics.

17. (Previously Presented) The method according to claim 11, wherein said infrared spectrum is measured on a thin slice of tissue using an IR microscope set up for one of transmission and direct reflection spectrometry.

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18. (Previously Presented) The method according to claim 17, wherein said infrared spectra are measured in positional resolution.

19. (Previously Presented) The method according to claim 17, wherein each mapped infrared spectrum is compared against the reference database, thereby providing localized information on the spread of the disease in the tissue.

20. (Previously Presented) The method according to claim 17, wherein said reference database contains reference spectra of TSE-infected tissues and non-infected tissues of all structures that can be distinguished in the tissue section using infrared spectroscopy.

21. (Currently Amended) The method according to claim [[11]] 12, wherein the human organs are from one of the lymphatic system, the digestive system, the endocrine system, the cardiovascular system and the respiratory system.

22. (Previously Presented) The method according to claim 16, wherein the at least one pattern recognition method uses algorithms of one of multivariate statistics and artificial neuronal networks.

23. (Previously Presented) The method according to claim 16, wherein the extracting optimum spectral characteristic method uses genetic algorithms.

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24. (Previously Presented) The method according to claim 17, wherein said infrared spectra are mapped to the tissue site where the infrared beam is transmitted through the sample.

25. (Previously Presented) The method according to claim 24, wherein each mapped infrared spectrum is compared against the reference database, thereby providing localized information on the spread of the disease in the tissue.

26. (Previously Presented) The method according to claim 12, wherein said infrared spectrum of the tissue is measured in at least one region of one of the mid-infrared range from 500 to 4000 cm^{-1} and the near infrared range from 4000 to 10000 cm^{-1} .

27. (Previously Presented) The method according to claim 12, wherein said infrared spectrum of the tissue is measured in the spectral region from 1000 to 1300 cm^{-1} of the mid-infrared range.

28. (Canceled)

29. (Previously Presented) The method according to claim 12, wherein said infrared radiation interacts with said sample, and the characteristically altered radiation is detected in one of a transmission/absorption, attenuated total reflection, direct reflection measuring setup, diffuse reflection measuring setup, and by using IR waveguides.

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30. (Previously Presented) The method according to claim 13, wherein said infrared radiation interacts with said sample, and the characteristically altered radiation is detected in one of a transmission/absorption, attenuated total reflection, direct reflection measuring setup, diffuse reflection measuring setup, and by using IR waveguides.